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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 09/945,200
Filing Date: August 30, 2001
Appellant(s): MORRIS, MARTIN

Michael T. Cruz
For Appellant

**EXAMINER'S ANSWER**



This is in response to the appeal brief filed 8/24/2006 appealing from the Office action mailed 12/2/2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 2002/0187799 A1 | HAARTSEN | 12-2002 |
| 2002/0034172 A1 | HO | 3-2002 |

Instant Application's Disclosed Prior Art (specifically paragraphs 1027 and 1028 and figure 3A).

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

9. Claims 1-6, 8-15, 17-21 and 24-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen (US 2002/0187799) in view of Ho (US 2002/0034172) further in view of the instant application's disclosed prior art.

Regarding claims 1, 8, 12, 17, 18, 21, 27, 30, 32 and 33, Haartsen discloses a wireless communication device and method of using a wireless communication device (abstract). A receiver is operable to receive an incoming transmission (paragraph 0064). A transmitter is operable to send an outgoing transmission over a first range (paragraph 0063). An error correction coding circuit is provided to vary the level of the error correction coding applied to the data within the outgoing transmission (paragraphs 0061 and 0063). The describe link adaptation scheme of altering the coding rate may be used to automatically adjust communication link parameters to provide a desired range (paragraph 0058).

Haartsen does not disclose a portion of the outgoing transmission is reserved to notify a second wireless device of a change in the level of error correction coding. Ho discloses, in figure 1B, a FEC value 114 is transmitted and provides information on the forward error correction scheme (paragraphs 0086 and 0093). This allows the second wireless device to know the level of coding for the FEC fields 310 and 412 (paragraph 0093) and allows the error correction to begin immediately. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Ho into the wireless method and device of Haartsen for the reason stated above.

The combination of Haartsen and Ho do not disclose the reserved portion of the transmission is found in a dedicated inquiry access codes (DIAC). The instant

application's disclosed prior art states according to the Bluetooth specification, DIACs are specifically chosen to tolerate a higher bit error rate than a body of a message, such that they can be detected beyond a range at which a Bluetooth transmission normally would be corrupted (paragraph 1027). For this reason, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the DIAC of the instant application's disclosed prior art to contain the FEC value 114 of the combination of Haartsen and Ho.

Regarding claims 2-5, the receiver measures a performance parameter and sends information to the transmitter to change the user rate (coding rate) (Haartsen, paragraph 0017). The receiver will decode the following transmission at this new error correction-coding rate.

Regarding claim 6, the wireless communication system utilizes Bluetooth specifications for transmitting and receiving data (Haartsen, paragraph 0009).

Regarding claims 9, 26, 29 and 31, data transmitted following the Bluetooth specification has data comprising a digitally encoded data packet including an access code portion, a header portion and a payload portion (instant application's disclosed prior art).

Regarding claim 10, the describe link adaptation scheme of altering the coding rate described above may be used to automatically adjust communication link parameters to provide a desired range (Haartsen, paragraph 0058).

Regarding claims 11, 24 and 25, the FEC value 114 is received and indicates the level of coding for the FEC fields. This will show an increase, decrease or the same level of coding (Ho, paragraphs 0086 and 0093).

Regarding claims 13 and 14, a signal strength indicator is monitored in the receiver to determine if additional error correction coding is necessary (Haartsen, paragraph 0017) to increase the range of the transmission (paragraph 0058). A signal strength of zero would indicate the signal is not detected and a change to the error correction coding is necessary.

Regarding claim 15, symbols are re-encoded using the increased coding (Haartsen, paragraph 0042).

Regarding claims 19 and 20, the transmitting device searches for available receivers to receive the transmitted data (Haartsen).

Regarding claim 28, greater error correction coding capacity is included (Haartsen, paragraph 0041).

**(10) Response to Argument**

(A) Introduction

Prior to responding to the arguments, the examiner would like to describe the field of invention, which is the same for the application and prior art.

In communication systems, a transmitter transmits a signal to a receiver over a transmission medium. Transmission media can introduce noise or some type of distortion into the received signal, which causes errors to occur in the decoding process after the transmitted signal has been received at the receiver. Error correction coding is used to remove this distortion to allow the receiver to properly recover the originally transmitted signal. The level of error correction coding can be adjusted according to the distortion present in the channel or the importance of the information transmitted as well as other criteria.

(B) Description of the Haartsen reference

Haartsen discloses a system, method and computer program for allocating resources to a communication channel between a transmitter and a receiver. The communication channel is monitored and the error correction coding is increased and decreased according to the performance of the communication channel. For example, if the communication signal strength satisfies a threshold, then the bandwidth dedicated to the communication channel may be decreased and at least one of the number of bits per symbol and coding rate may be increased as stated in the abstract.

(C) Description of the Ho reference

Ho discloses a wireless communication protocol that includes the frame format shown in figure 1. Ho discloses transmitting a forward error correction (FEC) value that indicates the forward error correction scheme pertaining to the body of the frame. The body of the frame contains the data that is to be recovered in the receiver. The FEC value is found in a reserved location so the receiver will know the error-correction coding scheme prior to the decoding of the data.

(D) Description of the Instant Application's Disclosed Prior Art

The instant application's disclosed prior art discloses the use of inquiry access codes and specifically dedicated inquiry access codes (DIAC). DIACs are specifically chosen to tolerate a higher bit error rate than the body of a message so that they can achieve their function of being detected by a receiver beyond a range at which a Bluetooth transmission would normally be corrupted.

(E) Response to Argument

The examiner discusses the claims in the same order as the Appellant.

I. Claims 1-6, 8-15, 17-21 and 24-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haartsen (US 2002/0187799) in view of Ho (US 2002/0034172) further in view of the instant application's disclosed prior art.

Claims 1-6 and 8-11- Appellant states Ho teaches away from the use of the access portion as set forth in claim 1, that the access portion being reserved to notify a second wireless device that the outgoing transmissions have an increased level of error-correction coding. The examiner disagrees. MPEP 2143.01 states, the court stated that "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed:..." Id. The court emphasized that the proper inquiry is "whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination, not whether there is something in the prior art as a whole to suggest that the combination is the most desirable combination available." Id. Since the disclosure of Ho "does not criticize, discourage or otherwise discredit the solution claimed", the examiner disagrees with the Appellant's statement that Ho specifically teaches away from an access portion being reserved to notify a second wireless device that the outgoing transmissions have an increased level of error-correction coding. In addition, the combination of Haartsen in view of Ho further in view of the instant application's disclosed prior art, as stated in the final office action, discloses the access portion being

reserved to notify a second wireless device that the outgoing transmissions have an increased level of error-correction coding.

Appellant states Haartsen teaches away from notifying a second wireless communications device that the outgoing transmissions have an increased level of error-correction coding. In addition, Appellant states Haartsen, at paragraph 0017, discloses that the performance parameter of the communication channel is measured at the second wireless communication device. Haartsen does state in paragraph 0065, "Control unit 324 measures the link performance and the strength of the received signal (e.g. the RSSI), and calculates a desired coding rate r and a desired number of bits per symbol m. This information may be transmitted to the transmitter section of a radio transceiver in communication with transceiver 300 to allow the transmitter to modify its coding rate r and modulation scheme as described above." Alternatively, Haartsen discloses the control unit 324 can rely on the reciprocity of the channel between transceiver 300 and another transceiver in paragraph 0066. Therefore, Haartsen measures the link performance and the strength of the received signal on the channel between the "another transceiver" (the second wireless communication device) and transceiver 300. This information can modify the coding rate r to the FEC encoder 310 (paragraph 0066). These components are shown in figure 3 as being components of the same transceiver 300. Therefore, the communication parameter is measured in the transceiver 300 (the first wireless communication device) and is not known to the "another transceiver" (the second wireless communication device). In addition, the examiner disagrees that Haartsen "teaches away" from this limitation since Haartsen

does not provide disclosure that criticizes, discredits, or otherwise discourages the solution claimed.

Appellant states the instant application's disclosed prior art teaches away from an access code portion being reserved to notify a second wireless communications device that the outgoing transmissions have an increased level of error-correction coding. However, Appellant has provided no support that the instant application's disclosed prior art teaches away from the claimed limitation. As stated above, MPEP 2143.01 states, the court stated that "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed....". This criticism is not found in the instant application's disclosed prior art. In addition, the combination of Haartsen in view of Ho further in view of the instant application's disclosed prior art, as stated in the final office action, discloses the access portion being reserved to notify a second wireless device that the outgoing transmissions have an increased level of error-correction coding.

Appellant states the Haartsen, Ho and the instant application's disclosed prior art teach away from the claimed invention and teaching away from the claimed invention is a "significant factor" in determining obviousness according to MPEP 2145. However, Appellant has not shown the prior art references teach away from the claimed invention. As explained previously, MPEP 2143.01 states, the court stated that "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or

otherwise discourage the solution claimed....". Appellant has not provided support that shows the disclosures criticize, discredit or otherwise discourage the solutions claimed.

Appellant submits that, if the application's disclosed prior art teaches a DIAC containing an FEC value, then Haartsen and Ho teach away from the application's disclosed prior art for the reasons stated above. The examiner disagrees. The rejection of the claims disclosed in the final office action stated the combination of Haartsen in view of Ho further in view of the instant application's disclosed prior art discloses the access portion being reserved to notify a second wireless device that the outgoing transmissions have an increased level of error-correction coding. The examiner disagrees that the references teach away from each other for the reasons stated previously.

Appellant submits that it is unnecessary to modify Haartsen so that a second wireless device can be notified of an increased level of error-correction coding since Haartsen teaches that the performance parameter of the communication channel is measured at the second communication device. As described above, Haartsen does state in paragraph 0065, "Control unit 324 measures the link performance and the strength of the received signal (e.g. the RSSI), and calculates a desired coding rate r and a desired number of bits per symbol m. This information may be transmitted to the transmitter section of a radio transceiver in communication with transceiver 300 to allow the transmitter to modify its coding rate r and modulation scheme as described above." Alternatively, Haartsen discloses the control unit 324 can rely on the reciprocity of the channel between transceiver 300 and another transceiver in paragraph 0066.

Therefore, Haartsen measures the link performance and the strength of the received signal on the channel between the "another transceiver" (the second wireless communication device) and transceiver 300. This information can modify the coding rate r to the FEC encoder 310 (paragraph 0066). Therefore, the communication parameter is measured in the transceiver 300 (the first wireless communication device) and is not known to the "another transceiver" (the second wireless communication device).

In response to Appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). The instant application's disclosed prior art states DIACs are specifically chosen to tolerate a higher bit error rate than the body of a message so that they can achieve their function of being detected by a receiver beyond a range at which a Bluetooth transmission would normally be corrupted (paragraph 1027).

Appellant submits there is no teaching in any of the documents of reserving an access portion to notify of an increased level of error correction coding. The examiner disagrees for the reasons stated in the final rejection of the claims. The combination discloses the coding rate increase or decrease as stated in Haartsen. An increase or decrease will take place since there is a previous level of encoding and any

change in the level of encoding will result in an increase or decrease to that new level of encoding. A FEC value 114 is transmitted to provide information on the forward error correction scheme (Ho: paragraphs 0086 and 0093) to allow the second wireless device to know the level of coding. This value is only for FEC and is therefore reserved (set aside) for that purpose. This reserved portion is found in the dedicated inquiry access codes (DIAC) as stated in the instant application's disclosed prior art (paragraph 1027) and is stated in the rejection above.

Appellant states Haartsen teaches away from the limitations of claim 1. Haartsen states increasing the amount of FEC coding or implementing a more robust modulation scheme typically decreases the net user rate in paragraph 0014. Appellant points to this citation as Haartsen disparaging changing the coding rate or modulation scheme. The examiner disagrees. Paragraph 0014 of Haartsen discusses the state of the art of existing link adaptation techniques at the time of the invention of Haartsen. This is the problem Haartsen is attempting to solve. Haartsen acknowledges this in paragraph 0015 that states "there is a need for link adaptation techniques that attempt to maintain a substantially constant net user rate and bit-error rate on the communication channel under changing signal and interference conditions." Haartsen states in paragraph 0040, "for a constant user rate R, there is a trade-off between the S/N ratio and the bandwidth W." Paragraph 0041 states "the communication unit attempts to determine whether degradation in the performance of a communication channel is attributable to noise or interference before applying a link adaptation scheme. The signal level may be measured using, e.g., the Received Signal Strength Indication

(RSSI)." Haartsen continues in paragraph 0046, "Assuming that the net user rate R is maintained constant, reducing the bandwidth W (i.e., reducing the bits per symbol) of the communication channel requires an increase in r (i.e., removing coding bits) and/or m (i.e., applying a more complex modulation scheme). These changes can be made provided the S/N ratio remains constant to support the desired net user rate." The term r is the coding rate. Haartsen claims this feature in claim 5. Claim 5 recites "wherein the step of decreasing the bandwidth allocated in the communication channel comprises increasing the coding rate applied to a communication signal at the transmitter." For these reasons, Haartsen does not disparage changing the coding rate. Haartsen requires the changing of the coding rate to maintain the net user rate R constant. Haartsen states, "Assuming that the net user rate R is maintained constant, reducing the bandwidth W (i.e., reducing the bits per symbol) of the communication channel requires an increase in r (i.e., removing coding bits) and/or m (i.e., applying a more complex modulation scheme). These changes can be made provided the S/N ratio remains constant to support the desired net user rate." (paragraph 0046) This is the problem of the existing link adaptation techniques for which Haartsen is attempting to overcome.

For these reasons and the reasons stated in the previous office action, it is requested that the previous rejections of claims 1-6 and 8-11 be affirmed.

Claims 12-15 and 17-20- Appellant's arguments for claims 12-15 and 17-20 are the same to the arguments stated for claims 1-6 and 8-11. Therefore, the

response to the arguments for claims 12-15 and 17-20 are the same at the response to arguments of claims 1-6 and 8-11 stated above.

Claims 21 and 24-26- Appellant's arguments for claims 21 and 24-26 is the same to the arguments stated for claims 1-6 and 8-11. Therefore, the response to the arguments for claim 21 and 24-26 are the same at the response to arguments of claims 1-6 and 8-11 stated above. In addition, Appellant submits none of the cited references teach appending to a beginning portion of an access code a portion a dedicated inquiry access code. The combination of Haartsen, Ho and the instant application's disclosed prior art discloses the DIAC, which is a component of the access code portion and is the first component of the frame as shown in figure 3 of the instant application's disclosed prior art.

Claims 27-29- Appellant's arguments for claims 27-29 are the same to the arguments stated for claims 1-6 and 8-11. Therefore, the response to the arguments for claims 27-29 is the same at the response to arguments of claims 1-6 and 8-11 stated above.

Claims 30-33- Appellant's arguments for claims 30-33 are the same to the arguments stated for claims 1-6 and 8-11. Therefore, the response to the arguments for claims 30-33 is the same at the response to arguments of claims 1-6 and 8-11 stated above.

For these reasons and the reasons stated in the previous office action, it is requested that the previous rejections of claims 1-6, 8-16, 17-21 and 24-33 be affirmed.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

**(12) Evidence Appendix**

There is no evidence being relied upon by appellant in the appeal.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Kevin M. Burd

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